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EXAMINER

COOLEY, CHARLES E

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/620,889	Applicant(s) HARA, MINORU	
	Examiner Charles E. Cooley	Art Unit 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-5 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

NON-FINAL OFFICE ACTION

Remarks

1. Upon reviewing the response filed 1 AUG 2005, it was noted sections (14) and (16) of the previous office action contains a typographical error concerning the identification of the Japanese reference. The substance of each of the rejections is correct, yet the reference intended to be applied is JP 8-309232 (cited on the PTO-892 form), *not* JP 58-6257. Accordingly, this office action reflects the proper reference in the statements of rejections under 35 U.S.C 102 and 103 and is a non-final office action. The error is sincerely regretted.

Election/Restriction Requirement

2. Claims 4-5 remain withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119, which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1723

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by JP 8-309232 (published 26 NOV 1996).

JP 8-309232 discloses in the attached abstract and in Figs. 1-3 a centrifuge rotor 60 for holding capped (the caps shown at 92a) sample tubes 92; the tubes 92 received in storing holes 67 that are inclined with respect to axis L such that an open end of each of the storing holes 67 is directed toward the axis L (Figs. 1 and 3); wherein the rotor has notches 66a facing the axis L for facilitating removal of the tubes from the rotor as seen in Fig. 3; the inclined storing holes 67 arranged at equiangular intervals in a circumferential direction (Figs. 1-3), and the contact portions of the rotor which engage a portion of the caps 92a corresponding to the respective storing holes 67 are connected to each other (Figs. 1-3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 8-309232 (published 26 NOV 1996) in view of Sheeran (US 4,832,678).

JP 8-309232 does not disclose the recited adapter of claim 3. The patent to Sheeran discloses in FIG. 1 a centrifuge apparatus 10 having a rotor 12 therein with which an adapter generally indicated by reference character 14 in accordance with the present invention may be utilized. The centrifuge 10 includes a chamber 16 of which only the floor portion is indicated in FIG. 1. A drive spindle 18 extends from a motive source 20 through a suitable sealing and bearing arrangement 22 into the interior of the chamber 16. The upper end of the drive spindle 18 is provided with a mounting element or spud 24. The centrifuge rotor 12 has a mounting opening 28 formed in the undersurface thereof. The rotor 12 is physically mounted on the spud 24 whereby the rotor 12 may be driven rotatably about a central vertical axis of rotation 30. The rotor 12 includes a plurality of sample receiving cavities or recesses 34. The axis 34A of the recesses 34 is inclined at a predetermined angle with respect to the vertical axis of rotation 30. When the recesses 34 are so inclined the rotor 12 is known as a fixed angle rotor. When the recesses 34 are parallel to the axis 30 it is known as a vertical rotor. The fixed angle rotor is illustrated in FIG. 1 although it should be understood that the adapter 14 and removal tool hereafter to be discussed may be used with equal facility in conjunction with a vertical tube rotor. However, in this instance, the benefit of obtaining the maximum relative centrifugal force using the adapter 14 is not able to be achieved, since the recess lies at the same radial distance from the axis 30 throughout its height. With a vertical rotor a spacer should be placed with the tube and adapter to present

Art Unit: 1723

deformation of the tube and/or the adapter. In the fixed angle rotor situation the closed bottom 34B of the sample receiving recess 34 lies at the greatest radial distance 38 from the axis of rotation 30. Therefore, in order to impose the maximum centrifugal force for a given rotational speed for a given time on a sample that sample should be disposed within the recess 34 at as great a radial distance as possible from the axis of rotation 30. When it is desired to spin a sample contained in a container 40, such as a microtube, which has a physical dimension and configuration substantially dissimilar to that of the sample receiving recess 34 in which the container is to be received it is necessary to utilize the adapter 14 in order to position the container 40 within the recess 34. The container 40 typically includes a flange 40F. The adapter 14 in accordance with the present invention permits the container 40 to be positioned within the recess 34 in the rotor 10 so as to lie at as great a possible radial distance from the axis of rotation 30. FIGS. 2 and 3 are, respectively, perspective and plan views of an adapter 14 in accordance with one embodiment of the present invention. The adapter 14 includes a body member generally indicated by reference number character 42 having a first or upper end 44 and a rounded lower end 46 thereon. The exterior configuration of the body of the adapter is adapted to closely conform to that of the recess 34 of the rotor 12. The adapter 14 may be fabricated from any suitable material such as metal or plastic. The adapter body has a central tube receiving opening 48 that extends a predetermined distance 50 into the body 42 of the adapter 14 from the first end 44 thereof. The contour and the length 50 of the opening 48 is configured to match the exterior configuration and length

Art Unit: 1723

of the particular container 40 whose dimension is to be adapted. In one embodiment of the invention shown in FIGS. 2 and 3 the exterior surface of the body 42 of the adapter 14 is provided with first and second substantially circumferentially extended groove segments 52A and 52B respectively. The segments 52A and 52B respectively communicate with substantially axially extending slots or notches 54A and 54B. The slots or notches 54A, 54B open on the first end 44 of the body 42 and extend along the exterior of the body 42 to their associated groove segments 52A, 52B. The segments 52A, 52B each lie a predetermined distance 53 from the first end 44 of the body 42. The upper wall of the groove segment 52A, 52B closer to the first end 44 of the adapter 14 defines a latching surface 56A, 56B for a purpose to be made clearer herein. The latching surfaces 56A, 56B each extend at least a predetermined latching distance 58A, 58B from the respective slot 54A, 54B with which the groove segment 52A, 52B is associated. Each slot 54A, 54B has a predetermined width dimension 60A, 60B associated therewith. In the preferred embodiment segments 52A, 52B extend on diametrically opposed portions of the body of the adapter 14. The slots or notches 54A, 54B are also angularly spaced one hundred eighty degrees on the body 42 of the adapter 14 such that the opening of the slots or notches 54A, 54B are diametrically disposed on the upper end 44 of the body 42. It should be understood that any predetermined orientation for the slots or notches and the segments may be defined on the exterior of the body of the adapter so long as the slots or notches open on the first end of the adapter, the slots or notches communicate with

Art Unit: 1723

the respective groove segments, and a latching surface defining a predetermined latching distance is defined by the wall of the groove segment closer to the first end of the body of the adapter. FIGS. 4 and 5 illustrate an alternate embodiment of the present invention in which the discrete groove segments 52A, 52B are replaced by a continuous, uninterrupted groove 62 that extends circumferentially about the exterior of the adapter 14. The region of the upper wall of the groove 62 adjacent the slots or notches 54A, 54B defines the latching surface 56A, 56B. The slots or notches 54A, 54B are themselves similar to those disclosed in the embodiment of the invention shown in FIGS. 2 and 3. In operation, the sample container 40 is introduced into the opening 48 provided in the adapter 14. The adapter 14 is then introduced using a tool 70 to be described into the recess 34 of the rotor 10 and centrifuged in accordance with any desired operational protocol. With reference now to FIG. 6 shown is a perspective view of a removal tool 70 for inserting and removing the adapter 14 shown in FIGS. 2 through 5 from a sample recess 34 of the centrifuge rotor 12. The tool 70 includes a main trunk portion 72 having legs 74A and 74B extending axially therefrom. The lower ends of the legs 74A, 74B are bent so as to define a removal claw 76A and 76B respectively. Each claw 76A, 76B extends a predetermined distance 78A and 78B (FIG. 8) from the leg 74A, 74B with which it is associated. The distance 78A, 78B plus the thickness (diameter) of the respective associated leg 74A, 74B is less than the width dimension 60A, 60B of the slot 54A, 54B (FIGS. 2, 4). The legs 74A, 74B are angularly spaced with respect to the trunk 72 the

Art Unit: 1723

same angular distance that the slots or notches 54A, 54B occupy with respect to the body of the adapter 14. As seen in FIG. 8 the claws 76A, 76B lie generally circumferentially on a circle 80 the center of which lies on the axis 82 of the tool 70. The claws 76A, 76B may extend tangentially with respect to such a circle 80. As is best seen in FIG. 7 the interior of the trunk 72 of the tool 70 is hollow to define a cylinder 84 therein. A piston 86 having a protruding retainer head 88 is slidably received within the cylinder 84. The piston 86 is captured in the cylinder 84 by a ring 90. A biasing element 92 such as a spring imposes an axially directed biasing force on the piston 86 acting in the direction of the arrow 94. In operation, as may be understood from FIGS. 7 and 8, at the termination of the run the legs 74A, 74B of the removal tool 70 are aligned with and introduced into a recess 34 of the rotor 12 and through the slots or notches 54A, 54B so that the claws 76A, 76B are proximal to the latching surfaces 56A, 56B defined on the groove segments 52A, 52B or the groove 62. The adapter 14 in FIGS. 7 and 8 has the segments 52A, 52B superimposed on the uninterrupted groove 62 only for purposes of economy of illustration. The tool 70 is rotated in the direction of the arrow 96 (FIG. 8) so as to bring a latching claw 76 into engagement with the latching surface 56A, 56B on the groove segment 52A, 52B or the groove 62, as the case may be. Thereafter an extraction force in the direction 98 (FIG. 7) is applied to the tool 70 causing the claws 76 to abut the latching surfaces 56 permitting the tool 70 to withdraw the adapter 14 and the container 40 carried therein from the recess 34 of the rotor 12. The retainer head 88 of the piston 86 engages against the flange 40F of the

Art Unit: 1723

container 40 that protrudes from the opening 48 in the adapter 14 thereby holding and securing the container 40 within the adapter 14 during the removal process.

Accordingly, it would have been obvious to one having ordinary skill in the art, at the time applicant's invention was made, to have provided the centrifuge and rotor of JP 8-309232 with an adapter a having a notch therein as taught by Sheeran '678 for the purpose of enabling the rotor to hold and centrifuge sample tubes that are smaller than the storing holes in the rotor (such as microtubes) and to facilitate removal of the adapters and tubes from the rotor (col. 2, line 11 through col. 3, line 7 and col. 4, lines 12-23).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Cooley whose telephone number is (571) 272-1139. The examiner can normally be reached on Mon-Fri. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Charles Cooley". The signature is fluid and cursive, with the first name "Charles" and the last name "Cooley" clearly distinguishable.

Charles E. Cooley
Primary Examiner
Art Unit 1723

10 August 2005